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## A CHILD HARNESS

5 The present invention relates to a child harness of the kind defined in the preamble of Claim 1.

10 The invention thus relates to a harness that includes a child carrying pouch which is positioned on the front side of the harness, so as to be supported on the chest side of the wearer, and that further includes two strap loops which pass around respective shoulders of the wearer and which loops are mutually fastened by means of a fastener means on the rear side of the harness.

The weight of the child is transferred to the wearer's back via the looped shoulder straps.

15 One drawback with known child harnesses is that the load to which the wearer is subjected on his/her back will depend on the position of the strap fastener means on the rear side of the wearer and also on the tension forces in those parts of the shoulder straps that connect with the fastener means and with the fastening point respectively.

20 Adjustments to the position of the fastener means are difficult to achieve and will not only result in a different location of the fastener means on the rear side of the wearer, but also in a change in the tensioning conditions relating to those parts of the straps that connect with the fastener means.

25 In those instances when a child harness is used by different persons on alternate occasions, (by mother and father for instance), it is difficult to adjust the strap fastener means to a position which is best for the wearer concerned at that time, with respect to the load to which he or she is subjected.

30 Accordingly, an object of the present invention is to provide a child harness with which the fastener means can be readily adjusted to a position that is comfortable to the wearer.

A further object of the invention is to provide child harness that has a back piece which functions to ease the load on the wearer.

These objects are achieved either fully or partially by means of the invention.

The invention is defined in the accompanying Claim 1.

Further embodiments of the invention will be apparent from the depending Claims.

According to one important feature of the invention, the fastener means is able to slide along those parts of the strap loops located on the rear side of the wearer. The fastener means will thereby take a displacement position along the straps that will depend on the tension forces acting in the directions of the strap portions that connect to the fastener means. In one practical embodiment, each shoulder strap may have a thickened edge, wherein the thickenings are provided on the mutually adjacent edges of the straps on the rear side of the harness. Moreover, the fastener means may have along each of two opposite sides an undercut groove into which the edge thickening of an adjacent strap loop is able to slide. The grooves are curved, to minimise the sliding resistance of the fastener means along the edge thickenings. The fastener means is also curved conveniently between its groove edges, with the concave side of the fastener means facing towards the wearer so as not to lie against the wearer's back.

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In one particularly preferred embodiment of the invention, the harness includes a waist belt which is connected to the fastener means by means of a back piece. The back piece will therefore set an upper limit for the distance between the waist belt and the fastener means. The back piece will preferably be flexible and therewith deformable so as to allow the fastener means to approach the waist belt when the interaction of forces in the loops promote said displacement of the fastener means. However, the back piece will preferably include a spring element that functions to stretch the waist belt and the fastener means apart by a distance that corresponds to the length of the back piece in the stretch direction. The back piece is preferably triangular in shape, with the base of the triangle extending along the waist belt and the top of the triangle connecting with the fastener means, so that the back piece will generally fill the space between the shoulder straps and the rear side of the wearer. This enables a large part of the weight of the child carried in the pouch to be applied to the wearer's back, via the back piece. Because the back piece is located in the

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lower part of the wearer's back, lightening of the load on the wearer will be particularly effective.

The lower part of the back piece may form a separate part of the waist belt, wherewith those parts of the waist belt that connect with the back piece may be joined by fastener or coupling elements that enable the lengths of respective belt portions to be adjusted. The belt portions are suitably connected together on the front side of the wearer with the aid of coupling elements, which may be affixed to the lower parts of the strap loops. The size of the loops, or shoulder straps, may be adjustable, in which case there is provided on the rear side of the loops a size adjusting element so that an end of the strap will extend down along the loop forwardly of the size adjusting element, therewith enabling the wearer to readily grip the strap ends and pull the same downwards to reduce the size of the loops.

The pouch can include a front piece whose lower portion is connected to the connection region between the strap loops on the front side of the harness, wherewith upper laterally orientated fasteners on said front piece are conveniently connected releasably to respective adjacent fasteners on the loops, on the front side of the harness. The coupling elements of the waist belt may connect indirectly with one another via a further coupling element on the lower part of the front piece. The strap loops and the waist belt coupling elements may both be fixedly connected to the further coupling element. Alternatively, one part of the strap loop may, however, pass through a transit opening on the coupling element and pass into a waist-belt fastener element.

The invention will now be described in more detail with reference to the accompanying drawing.

Figure 1 illustrates the baby harness lain out in a flat state on a flat surface.

Figure 2 illustrates a part of the harness shown in Fig. 2.

Figure 3 is a sectional view taken on the line III-III in Fig. 2.

Shown in Fig. 1 is a child harness that includes two looped shoulder straps which are intended to pass around respective shoulders of the person wearing the harness.

The harness carries on its rear side relating to the wearer a fitting or fastener means 11 which fastens together mutually adjacent parts of the loops 10. As will be seen from Fig. 1, the mutually adjacent edges of the strap portions 14 include thickenings 15. Furthermore, it will be seen from Figs 2 and 3 that the fastener means 11 has two opposite edges that each include an undercut groove 112 which accommodates the thickenings 15 so that they can slide along the grooves 112. The edges 110 in which the grooves are formed are curved to conform with the natural curvature of the straps 14 in the region of said connection, and hence the edges and grooves of the fastener means 11 are curved with their concave sides facing away from each other. The fastener means 11 is also curved between its edges 110 so that its concave side will face towards the wearer's back and therewith exert no pressure on the wearer's spine.

Because the edge thickenings 15 are able to slide easily through the grooves 12 on said fastener means, the fastener means 11 will take along the straps 14 a position that will depend on the tensile forces acting in the longitudinal portions of the straps 14 connected by the fastener means, and also in the direction in which said forces act. The fastener means 11 will thus slide automatically to and from positions that are favourable from a loading aspect.

It will also be seen from Fig. 1 that the harness includes a waist belt which extends between two coupling elements 20 that are connected to lower portions of the loops 10, said portions being intended to be coupled on the front of the wearer. The waist belt and the shoulder loops 10 are conveniently connected by coupling elements 20 that can be mutually connected indirectly via a further coupling element 30 which carries a lower part of a front piece 13 whose laterally disposed upper portions can be connected by releasable fasteners 131 to corresponding fasteners 17 on the front parts of the shoulder loops that extend generally vertical on the chest side of the wearer.

The front piece 13 forms a child carrying pouch. It will be seen that the lowermost part of the front piece is strip-shaped and extends through a transit loop 32 on the coupling element 30 and includes a series of discrete openings 134 that can be anchored on carrier pins 35 on the coupling element 30. The strap end of the front piece may include stop means that prevents passage through the transit loop or eyelet 32.

Both strap portions of the loops 10 may be fixedly fastened to the coupling element 20. Alternatively, one part of the loop may pass through an eyelet 21 on the coupling element and merge with an end part 41 of the waist belt 40 as shown in Fig. 1. The waist belt part/the waist belt part 41 are shown connected via a respective length adjustment element 42 on a back piece 47 that forms part of the waist strap 40. The back piece 47 extends upwardly and supports with its upper end connected to the fastener means 11 by a coupling 49 so as to provide an upper limit for the distance between the fastener means 11 and the waist belt 40. In the illustrated case, the back piece 47 is triangular in shape so that the load on the wearer will be transferred over the surface of the back piece to the region of the wearer's spine in the area between the shoulder straps 10 and the waist belt 40, beneath the fastener means 11.

The back piece 47 may comprise a flexible quilted fabric that will allow the fastener means 11 to approach the perimeter of the waist belt. In one embodiment, however, there is provided a strong elastic leaf spring 48 that extends vertically between the fastener means 11 and the lower part of the back piece such as to bias the fastener means 11 towards its end position relative to the perimeter or circumferential path of the waist belt 40 with a chosen spring characteristic.

It will be seen that each shoulder strap or loop 10 has a size adjusting element 19 from which a strap end 18 protrudes. The adjusting element 19 is situated between the fastener means 11 and the coupling element 20 on the rear side of the harness, and the strap end 18 extends generally in a direction towards the coupling element 20 so that the free end of the strap can be readily gripped by the wearer for adjustment of the size of the loop 10.